Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of:	)	
	)	
Amendment of the Commission's Rules to	)	
Facilitating the Use of Cellular Telephones and Other	)	WT Docket 04-435
Wireless Devices Aboard Airborne Aircraft	)	

REPLY COMMENTS OF AIRCELL, INC.

AirCell, Inc. ("AirCell") hereby submits these reply comments in response to comments filed in the above-referenced docket regarding the Commission's proposal, contained in its February 15, 2005 Notice of Proposed Rulemaking ("NPRM"),[1] to relax the ban on the use of cellular handsets on commercial aircraft.

AirCell notes that, except for those commenters concerned about in-flight phone etiquette and aircraft safety – issues not within the Commission's statutory jurisdiction – commenters widely support the Commission's proposal to permit the airborne use of wireless devices. All agree that any rule changes must include measures that will protect terrestrial networks from interference. AirCell, like others, believes this can be accomplished through the use of pico cell architecture. By achieving isolation from the terrestrial networks, there is no policy reason for restricting competition by providing existing terrestrial licensees with the exclusive right to operate airborne pico cells. Under AirCell's proposal, pico cells that satisfy the to-be-established technical standards should be available for unlicensed operation by any entity or, at most, should be subject to blanket licensing. It is still early in the process of developing consensus within the

[1] *See Amendment of the Commission's Rules to Facilitate the Use of Cellular Telephones and other Wireless Devices Aboard Airborne Aircraft*, WT Docket No. 04-435, Notice of Proposed Rulemaking, FCC 04-288 (rel. Feb. 15, 2005) ("NPRM").

industry on feasible technical solutions. The Commission at this point should adopt broad policy parameters to guide the continued development and testing of possible solutions.

I. The Commission Should Relax the Ban While Imposing Appropriate Safeguards To Protect Terrestrial Networks

The Communications Act establishes that it is "the policy of the United States to encourage the provision of new technologies and services to the public."[2] Consistent with this statutory mandate, the Commission should take the necessary action to permit members of the public to use their existing handheld wireless communications devices while airborne. The ability of passengers to communicate with the ground using voice, text or Internet applications via their own devices would represent a new service for which tremendous demand already exists. In its comments, SITA estimated that, based on its internal studies, the market for such service would be over 700 million passengers by 2009, representing some $2 billion in consumer expenditures for both data and voice communications.[3] Although aeronautical communications are available on a limited basis today using aircraft-installed handsets, the proposed new service would be much more user-friendly, given that consumers will be able to use the same familiar equipment that they use for ground-based communications, and should generally be able to rely on the same billing arrangement they have with their existing terrestrial carrier. Significantly, the new service will permit passengers to receive calls while airborne without calling the service provider prior to each flight to register the user's seat number. Moreover, the cost of the service will likely be substantially lower without need to install expensive seat-back handsets.

For the reasons described above, deleting the airborne cellular rule would be in the public interest, assuming the Commission conditions any airborne use of wireless handsets on the

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2 47 U.S.C. § 157.

3 SITA Comments at 21-22.

presence of an onboard pico cell or similar RF management system that will effectively protect terrestrial networks from harmful interference. As AirCell stated in its initial comments – and as all commenters addressing this issue agreed – the same RF management requirement should apply to any wireless handset use, including PCS, SMR and Part 27 services, so that these terrestrial networks are also protected.

The pico cell solution is already rapidly gaining acceptance in Europe. Indeed, the German Federal Ministry of Transport, Building and Housing recently indicated that it intends to lift the ban on in-flight use of mobile phones, as a result of test data showing that the pico cell concept will adequately protect terrestrial networks.[4] The Commission should take this international activity into account, and ensure that the American traveling public is offered the same service advancements and benefits as their European counterparts.

Assuming an acceptable solution can be found for protecting terrestrial networks, the only opposition to permitting the airborne use of wireless handsets came from parties and individuals (many via an organized letter-writing campaign) who fear that passengers would be annoyed by rampant mobile phone use in flight and that such use could increase stress levels and lead to angry "air rage" incidents. However, none of these comments explained how such a concern falls within the Commission's jurisdiction. As noted above, the Commission is charged with making new communications services available to the public, not with airline safety issues – which are fully within the purview of the Federal Aviation Administration ("FAA").[5] The fact that the

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[4] *See* "Flight phones - another chapter, but still no resolution as Germany considers allowing in-flight calls," *Newswireless.net*, July 5, 2005, available at http://www.newswireless.net/index.cfm/article/2310.

[5] Moreover, AirCell notes that the FAA has already pledged to monitor the issue, but certainly has not taken the position that the mere possibility of in-flight disturbances is sufficient to justify maintaining the ban. *See* Statement of Nicholas Sabatini, Associate Administrator for Aviation Safety, before the Subcommittee on Aviation, Committee on Transportation and

Commission may *permit* the airborne use of handsets does not mean that airlines will be required to allow their passengers to make calls. As the FAA as well as several commenters have noted, it will be up to the airlines (and, by extension, the marketplace) to determine the extent of wireless device use during a flight and the etiquette that will be imposed.[6] In short, user etiquette in an aircraft is no more an FCC issue than user etiquette in movie theaters.

II. Only Broad Policy Parameters, Not Technical Standards, Are Needed At This Time

AirCell continues to believe that an active RF management solution, such as pico cell architecture, would enhance the protection of all terrestrial wireless networks, even beyond what is provided by the current airborne use prohibition, by controlling the signals from all onboard wireless devices to prevent interference with terrestrial wireless calls. Any such solution must, however, include the use of "masking signals" to prevent a handset from registering on its home carrier's terrestrial base stations. Although technical details remain to be determined, many commenters agreed that a pico cell-based RF management system represents a workable solution.[7] However, more development and testing is needed before adopting any specific technical standards at this time. At this stage of the proceeding, the Commission should adopt only broad policy parameters, which would provide some guidance and feedback to the proposals suggested by commenters to date. The catalyst for any decision on the technological solution(s) ultimately

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Infrastructure, U.S. House of Representatives, July 14, 2005 at 8 ("This will be one of the issues we will continue to assess and monitor if cell phone technology proliferates onboard aircraft.") ("Sabatini Statement").

6 *See* Sabatini Statement at 8 ("We expect that air carriers will have to sort this out, weighing the pros and cons …."); Cingular/Verizon Comments at 26; SITA Comments at 23; Qualcomm Comments at 27. Moreover, AirCell believes that "quiet" data applications will be a major use of any in-flight operation of wireless handsets. Maintaining the status quo would prevent even this "non-offending" new service.

7 *See* Boeing Comments at 27; Rockwell Collins Comments at 3-4; CORF Comments at 5; and Ericsson Comments at 4.

permitted should be a specific proposal from industry that is presented to the Commission along with a thorough interference analysis to prove that the solution will not interfere with terrestrial networks.[8] This will likely not occur until after the RTCA has made recommendations regarding what type of operations it will find acceptable to avoid interference to aircraft avionics.

III. Operation Of Pico Cells Should Not Be Limited To Existing Licensees

Many commenters agreed with AirCell that the operation of onboard pico cells should not be restricted only to terrestrial licensees.[9] Rather, the Commission should adopt a competitively neutral scheme whereby any qualified entity could provide in-flight communications services, providing airlines with a choice in communications vendors, just as they have a choice in caterers and other onboard service vendors.[10] AirCell believes that a technical solution can be reached that will permit onboard pico cells to operate without impacting the many different terrestrial networks below. Assuming such isolation can be achieved, there is no policy reason to restrict pico cell operation to existing licensees, despite licensees' arguments that they are entitled to exclusive use of their assigned frequencies at any altitude and even at very low power levels. As the Commission noted in the *UWB Reconsideration Order*, the D.C. Circuit previously rejected licensee claims to absolute exclusivity, holding that a licensee cannot object to secondary use of its spectrum so long as no harmful interference exists.[11] The Commission explained that an exclusive

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8 *See* Rockwell Collins Comments at 3 (technical rules should be adopted by an industry group).

9 *See* Boeing Comments at 8; Ericsson Comments at 7; Rockwell Collins Comments at 7.

10 *See* SITA Comments at 26.

11 *Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems,* Memorandum Opinion and Order, 18 FCC Rcd 3857 (2003) ("*UWB Reconsideration Order*") at ¶ 74 (citing *AT&T Wireless v. FCC,* 270 F.3d 959, 964 (D.C. Cir. 2001).

license "does not preclude the Commission from approving new services that do not otherwise affect operationally the wireless carriers' operations."[12]

Interestingly, CTIA and several wireless carriers cite to the same paragraph of the same *UWB Reconsideration Order* to support their call for exclusive licensee control of the spectrum used by pico cells. Ignoring the broader point of that paragraph, they rely heavily on the fact that the Commission stated that "cellular and PCS licenses are exclusive in the sense that no other carriers will be allowed to provide cellular or PCS service in the same frequency band, in same area, and at the same time."[13] However, these licensees implicitly jump to the conclusion that the service to be provided to passengers in flight is "a cellular or PCS service." First, due to interference concerns, the communications "pipe" between the aircraft and the ground will not be on the same spectrum used by terrestrial networks, such as cellular or PCS. The connection between the aircraft and the ground will be on air-to-ground ("ATG") or satellite spectrum. Thus, it is something of a stretch for the licensees to argue that a PCS or cellular service is being provided when the overall service offered to passengers includes a segment of PCS or cellular spectrum of perhaps only a few meters (from the handset to the pico cell antenna) at very low power levels (possibly comparable to those permitted on an unlicensed basis under certain sections of Part 15). Once the signal reaches the pico cell hardware, the communication path is then transferred to spectrum band, using much higher power, to travel the many miles until it reaches the ATG or satellite provider's ground network and eventually, the PSTN or the Internet. AirCell cannot imagine that the link from passenger handset to the pico cell hardware would ever be treated as an independent service for which the passenger is billed separately. Instead, a unified

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12 *UWB Reconsideration Order* at n.188.

13 CTIA Comments at 13; Joint Comments of Cingular Wireless and Verizon Wireless ("Cingular/Verizon Comments") at 4.

service will carry the passenger's communications all the way to the ground. Thus, the link between the handset and the pico cell operating on licensed spectrum will be ancillary or adjunct to the air-to-ground or satellite service being offered and therefore would not constitute "PCS or cellular service."[14] The emissions occurring at non-interfering levels on the licensed frequencies should therefore be treated like unlicensed operations which have long been permitted in licensed bands.

CTIA also suggests that an in-flight pico cell that crosses over a licensee's territory be treated as "roaming" into the licensee's territory and appropriate roaming compensation paid.[15] However, under traditional concepts of roaming, the roaming customer uses the *network* of the local licensee. By contrast, in the pico cell concept, the emphasis is on *preventing* any contact with licensee's network.

Even if a terrestrial licensee did have a right to compensation for the non-interfering, *de minimus* use of its spectrum inside the airplane cabin, none of the commenters have offered a reasonable explanation of how a licensee pico cell operator could compensate the hundreds of other licensees whose spectrum would potentially be used during the course of a flight. Cingular/Verizon merely assert that, with GPS tracking, establishing such a system would be "trivial."[16] Yet determining whose spectrum is being used is much more complicated than establishing an aircraft's exact location in relation to the ground. For any given ground location, there could be 10 or more different terrestrial licensees, counting the various cellular, PCS, SMR

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[14] In other words, the in-cabin wireless link would represent only one input component that is assembled to offer passengers the air-to-ground service.

[15] CTIA Comments at 15.

[16] Cingular/Verizon Comments at 7 ("It is a trivial matter to determine the terrestrial carrier in each frequency band on a real-time basis as a flight progresses, and to conform the picocell system's operation to the requirements of the licensees being overflown.").

and AWS carriers. Thus, any tracking system would have to determine specifically which frequencies were being used in the cabin at the precise moment (in many cases, lasting less than a minute) an aircraft is over a given license area. Identifying the correct licensee is further complicated by license partitioning and disaggregation. For example, after a license is disaggregated, even the Commission's licensing database typically does not list the frequencies that are subsequently held by the disaggregator and disaggregatee. This can often be determined only by reviewing the disaggregation application.[17] Thus, AirCell believes that, far from being a "trivial" matter, such a scheme would entail enormous administrative costs and would likely be unworkable.[18]

Finally, under the scheme proposed by Cingular/Verizon, apparently any CMRS terrestrial licensee would be entitled to operate airborne pico cells.[19] Such an artificial barrier to entry would create an incentive for entities interested in providing air-to-ground services to acquire some nominal sliver of PCS or similar spectrum (perhaps through partitioning and disaggregation) in order to gain admittance to the "club." Such a licensee likely would not be interested in providing terrestrial service within its licensed area. Establishing this type of "admission ticket" to compete in the airborne services market would serve no public interest goal and should be rejected.

IV. The Commission Should Not Impose Security-Related Mandates That Would Render The Service Financially Infeasible; Funding Assistance May Be Required For Any Non-CALEA Requirements

The Departments of Justice and Homeland Security ("DOJ/DHS") filed comments requesting that the Commission mandate a laundry list of capabilities, largely not covered by

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17 Likewise, partitioning creates non-standard geographic license areas, further complicating any attempt to determine who holds spectrum at a particular location.

18 *See* SITA Comments at 25-27 (describing the logistical complexities of a proposed secondary markets arrangement).

19 Cingular/Verizon Comments at 6-8.

CALEA, to assist law enforcement.[20] Taken as a whole, these requested mandates would be technically challenging and extremely costly to implement. They would also negatively impact the user experience: for example, users would have to register their seat location prior to making or receiving a call.[21] Privacy experts have responded that: (1) the Commission has no statutory authority to impose the requested requirements; (2) such action would conflict with a number of the provisions in CALEA; and (3) the proposed anticipatory wiretapping scheme raises serious constitutional and statutory questions.[22]

AirCell intends to work with DOJ and DHS to address any security issues raised by airborne wireless use which, as AirCell noted in its initial comments, also provides some security advantages.[23] However, the Commission must be careful not to encumber the system with costly mandates that will destroy the economic feasibility of offering the service in the first place. Thus, for any capabilities required in addition to those covered by CALEA, AirCell suggests that DOJ/DHS petition Congress to appropriate federal funds that can be made available to reimburse operators' implementation costs.

Conclusion

As discussed above, the Commission should move forward with its proposal to lift the ban on airborne cellular operations contained in Section 22.925. It is critically important, however, that the Commission ensure that airborne wireless communications – whether resulting from the amendment of Section 22.925 or from the eventual lifting of the FAA's ban on such

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20 DOJ/DHS Comments at 11-12, 14; *see also id.* at 10 ("capabilities in addition to those required by CALEA will be necessary").

21 *Id*. at 14.

22 *See* Reply Comments of the Center for Democracy & Technology and the Electronic Frontier Foundation (Aug. 3, 2005).

23 AirCell Comments at 10.

airborne usage – are controlled in a manner that will fully protect terrestrial networks. Given the ongoing development and testing that needs to be completed, the Commission should not attempt to adopt a technical solution at this time, but should wait until the industry has made specific proposals, complete with interference testing data. In the meantime, the Commission should establish broad policy principles to guide further development. One key principle should be to promote competition by establishing that any entity, not just terrestrial licensees, may operate non-interfering onboard pico cells or similar equipment, preferably on an unlicensed basis.

Respectfully Submitted,

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